

Maintenance Accountability Process

Field Data Collection Manual
Volume 1

February 2005

Maintenance and Operations Division
Maintenance Office



Washington State Department of Transportation

**Maintenance Accountability Process
Field Data Collection Manual
Volume 1**

TABLE OF CONTENTS

	Page
I. INTRODUCTION	
Data Collection Procedures -----	1
General Comments -----	1 - 2
Field Data Collection Form -----	3
Bridge Data Collection Form -----	4
Form Notes -----	5
II. PAVEMENT	
A. Potholes -----	6
B. Rutting -----	7
C. Alligator Cracking -----	8
D. Longitudinal / Transverse Cracking -----	9 - 10
E. Humps, Sags, Other Deficiencies -----	11
III. PAVED SHOULDER	
A. Shoulder Potholes -----	12
B. Shoulder Alligator Cracking -----	13
C. Shoulder Longitudinal / Transverse Cracking -----	14
D. Shoulder Edge Raveling -----	15
E. Shoulder Edge Drop-Off -----	16
F. Shoulder Sweeping / Cleaning -----	17
G. Shoulder Humps, Sags, Other Deficiencies -----	18
IV. DRAINAGE	
A. Ditches -----	19
B. Culverts -----	20
C. Catch Basins / Inlets -----	20
D. Slope Failures -----	22 - 23
V. ROADSIDE	
A. Noxious Weeds -----	24 - 25
B. Nuisance Vegetation -----	26
C. Vegetation Obstructions -----	27
D. Litter -----	28
VI. TRAFFIC	
A. Raised / Recessed Pavement Markers -----	29 - 30
B. Pavement Markings -----	31
C. Guideposts -----	32
D. Guardrail -----	33
VII. BRIDGES	
A. Bridge Deck -----	34
B-1. Decks & Sidewalks -----	35
B-2. Graffiti -----	36

Maintenance Accountability Process Field Data Collection

INTRODUCTION

An important part of the Maintenance Accountability Process (MAP) is regular field condition surveys conducted on the highway system. The surveys assess the maintenance service levels that exist at a given point in time. The purpose of this manual is to document the procedures for consistent data collection.

Data Collection Procedures

1. Statistical methods are used to identify approximately 2,200 randomly selected data survey sites around the state. These are 0.10 mile sections (528 feet) selected from the approximately 7,000 centerline miles of state highway inventory.
2. Using Milepost Markers and the vehicles DMI, locate and mark the start and end points for each site. Mark the points with paint at the edge of the shoulder so that they can be located again if needed.
3. If any portion of the site falls on a structure, the site should be moved forward or backward as necessary to avoid the structure.
4. Sites in construction zones should not be evaluated. Relocate the site outside of the construction area but as close to the original site as possible.
5. Activate flashing lights on vehicle, place cones for safety, and use appropriate traffic control measures. Always wear required safety equipment, reflective vest, supportive footwear, etc.
6. Conduct field measurements and observations at the sites and record the data. When performing data collection always try to walk facing traffic. On divided highways and freeways it may be necessary to drive around to the lanes in the opposite direction and set points on that side of the road as well. Remember SAFETY FIRST.

General Comments

Cumulative Deficiencies

Pavement deficiencies are cumulative. Where one type of deficiency is found within the area of second type of deficiency both deficiencies are counted independently. For example, a 25 sq. ft. area of alligator cracking may contain a 2 sq. ft. pothole. Do not subtract the 2 sq. ft. of pothole from the 25 sq. ft. of alligator cracking.

Fog lines (Traveled Lane versus Paved Shoulder)

For the purposes of MAP field data collection, the fog line is considered part of the traveled lane. Deficiencies occurring on the fog line are deficiencies of the traveled lane.

Field Data Collection Form

MAP Field Data Collection Form

Site Number:	<input style="width: 80%;" type="text"/>	SR:	<input style="width: 80%;" type="text"/>	SRMP:	<input style="width: 80%;" type="text"/>	Region:	<input style="width: 80%;" type="text"/>	Area:	<input style="width: 80%;" type="text"/>	<input type="checkbox"/> Moved
Taken By:	<input style="width: 100%;" type="text"/>					Date:	<input style="width: 80%;" type="text"/>		<input type="checkbox"/> QAQC	

NUMBER OF LANES

Total Number of Lanes:	<input style="width: 90%;" type="text"/>
------------------------	--

PAVEMENT - Traveled Lanes

Potholes	Square Feet of Potholes:	<input style="width: 90%;" type="text"/>
Rutting	Total Number of Ruts \geq 3/4":	<input style="width: 90%;" type="text"/>
Alligator Cracking	Sq. Ft. of Alligator Cracking:	<input style="width: 90%;" type="text"/>
Cracking	Lin. Ft. of Longitudinal Cracking:	<input style="width: 90%;" type="text"/>
	Lin. Ft. of Transverse Cracking:	<input style="width: 90%;" type="text"/>
Humps, Sags And Settlements	Sq. Ft. of Deficiencies:	<input style="width: 90%;" type="text"/>

PAVED SHOULDER

Total Width of Paved Shoulders:	<input style="width: 90%;" type="text"/>
Shoulder Potholes	Sq. Ft. of Shoulder Potholes:
Shoulder Alligator Cracking	Sq. Ft. of Alligator Cracking:
Shoulder Cracking	Lin. Ft. of Longitudinal Cracking:
	Lin. Ft. of Transverse Cracking:
Shoulder Edge Raveling	Lin. Ft. of Edge Raveling:
Shoulder Edge Drop-Off	Lin. Ft. of Edge Drop-Off \geq 2":
Shoulder Sweeping/Cleaning	Lin. Ft. of Shldr. Debris Build-Up:
	Width of Shldr. Debris Build-Up:
Shoulder Humps, Sags And Settlements	Sq. Ft. of Deficiencies:

1x 528	6x 3168
2x 1056	7x 3696
3x 1584	8x 4224
4x 2112	9x 4752
5x 2640	

DRAINAGE

Ditches	Linear Feet of Ditches:	<input style="width: 90%;" type="text"/>
	Linear Feet of Ditch \geq 50% Full:	<input style="width: 90%;" type="text"/>
Culverts	Number of Culverts:	<input style="width: 90%;" type="text"/>
	Number of Culverts Deficient:	<input style="width: 90%;" type="text"/>
Catch Basins - Inlets	Number of Basins / Inlets:	<input style="width: 90%;" type="text"/>
	Num. of Deficient Basins / Inlets:	<input style="width: 90%;" type="text"/>
Slope Failures	Slope Failure Present:	<input style="width: 90%;" type="text"/>

ROADSIDE

Total Width of Roadside:	<input style="width: 90%;" type="text"/>
Noxious Weeds	Sq. Ft. of Noxious Weeds:
Nuisance Vegetation	Sq. Ft. of Nuisance Vegetation:
Vegetation Obstructions	Vegetation Obstruction Present:
Litter	Number of Pieces of Litter:

TRAFFIC

Raised / Recessed Pavement Markers	Num. of Raised Pvmt. Markers:	<input style="width: 90%;" type="text"/>
	Num. of Markers Worn/Missing:	<input style="width: 90%;" type="text"/>
Pavement Markings	Number of Pavement Markings:	<input style="width: 90%;" type="text"/>
	Number of Markings Worn:	<input style="width: 90%;" type="text"/>
Guideposts	Number of Guideposts:	<input style="width: 90%;" type="text"/>
	Num. of GPs Broken/Damaged:	<input style="width: 90%;" type="text"/>
Guardrail	Lin. Ft. of Guardrail:	<input style="width: 90%;" type="text"/>
	Lin. Ft. of Guardrail Damaged:	<input style="width: 90%;" type="text"/>

Bridge Data Collection Form

MAP Bridge Data Collection Form

Bridge Information				
Bridge Number:	<input style="width: 90%;" type="text"/>	Sr:	<input style="width: 90%;" type="text"/>	SRMP:
			<input style="width: 90%;" type="text"/>	Region:
				<input style="width: 90%;" type="text"/>
				Area:
				<input style="width: 90%;" type="text"/>
Taken By:			<input style="width: 100%;" type="text"/>	
			Date:	
			<input style="width: 100%;" type="text"/>	

Bridge Size Bridge Length: <input style="width: 80%;" type="text"/> Bridge Width: <input style="width: 80%;" type="text"/>	Bridge Deck Sq. Ft. of Spalling: <input style="width: 80%;" type="text"/>
---	---

Decks and Sidewalks Sq. Ft. of Sand/Debris: <input style="width: 80%;" type="text"/>	Graffiti % of Surface Dirty: <div style="margin-left: 20px;"> <input type="checkbox"/> None 0% <input type="checkbox"/> Minor 1-10% <input type="checkbox"/> Moderate 11-30% <input type="checkbox"/> Major 31-50% <input type="checkbox"/> Significant >50% </div>
--	--

Instructions

When filling out paper form, record the bridge number found on the bridge or on the WSDOT Bridge List. Record the state route, milepost, region, area, names of inspection team members, and date.

When filling out the computer form, type in the bridge number (example 90/327), press enter and state route, milepost, region, area and bridge size will be filled in automatically.

Bridge Deck: Calculate and record the total square feet of spalling at least 6"x 6"x1" on the bridge deck.

Decks and Sidewalks: Calculate and record the total square feet of sand and debris on the bridge deck and sidewalk.

Graffiti: Estimate and record the percent of bridge surfaces that are covered with graffiti.

Be sure all blanks on the form are filled out.

Form Information

Field Data Collection Form

On the MAP Field Data Collection Form, record the site number from the master site list, State Route number, milepost, Region, Area, names of inspection team members, and date. Also record the number of lanes.

Bridge Data Collection Form

Record bridge number, state route, milepost, region, area, names of inspection team members, and date on the MAP Bridge Data Collection Form.

II - PAVEMENT (TRAVELED LANE)

A. POTHOLES



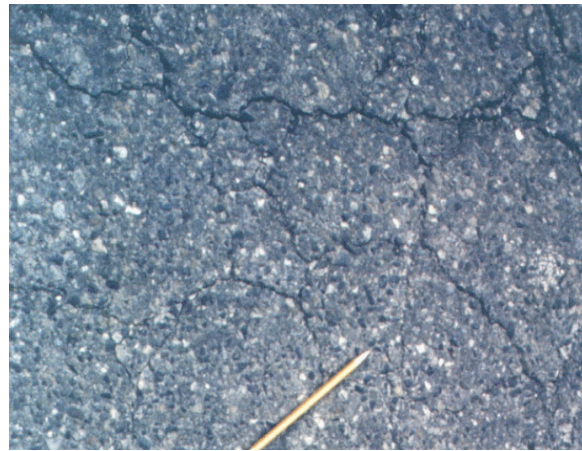
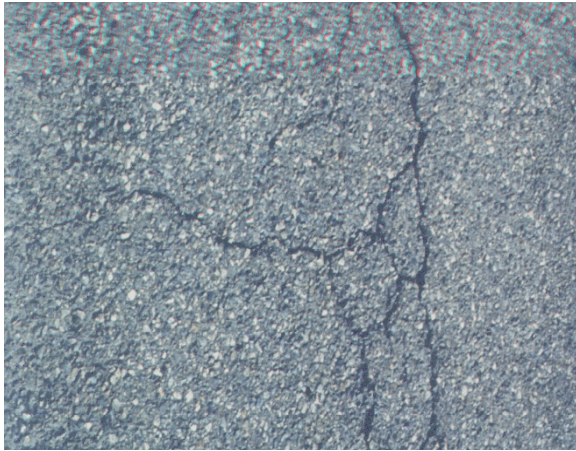
Units of Measure:	Total square feet of potholes, within traveled way, per 0.10-mile section.
Threshold:	Minimum size - (6" x 6" x 1" depth) or larger
Methodology:	Record the total square feet of all potholes. Round to the nearest whole number. Potholes smaller than the minimum size (6" x 6" x 1") are not counted.
Comments:	Spalls in concrete pavement are considered potholes when they are a minimum 6" x 6" x 1" in size.

B. RUTTING



- Unit of Measure:** Total number of wheel path ruts within the traveled way, per 0.10-mile section. Rutting must meet the minimum threshold below.
- Threshold:** Minimum depth - 3/4" or greater
- Methodology:** Measure to determine if the worst condition of rutting within the wheel path is 3/4 inches or greater. Count the total number of wheel path ruts meeting the minimum threshold within the section. For consistency, rutting is assumed to be 2 ½ feet in width and the full length of the segment (528 feet). **Do not record the linear feet of rutting.**

C. ALLIGATOR CRACKING



Unit of Measure:	Total square feet within traveled way, per 0.10-mile section.
Threshold:	All <u>unsealed</u> alligator cracking.
Methodology:	Calculate the total square feet for all alligator cracking in the section. Use the average width of cracking to calculate square feet.
Comments:	Alligator cracking is associated with loading and is usually limited to areas of repeated heavy traffic loading. Most load related cracking of this type begins as a single longitudinal, discontinuous crack within the wheel path that progresses with time and loads to a more branched pattern that begins to interconnect. The stage at which several discontinuous longitudinal cracks begin to interconnect is defined as alligator cracking.

D. LONGITUDINAL CRACKING



Unit of Measure:	Total linear feet within traveled way, per 0.10-mile section.
Threshold:	All <u>unsealed</u> longitudinal cracking - cracking running generally parallel to the centerline and edge line striping.
Methodology:	Measure and record linear feet of all unsealed longitudinal cracking within the section. Sealed cracks are not counted as a deficiency. Previously sealed cracks that have since re-opened are considered a deficiency.
Comments:	Unsealed panel and expansion joints in concrete pavement are not considered deficiencies for this survey. Where asphalt is overlayed on concrete pavement unsealed cracks in the asphalt pavement shall be counted as a deficiency.

D. TRANSVERSE CRACKING



Unit of Measure:	Total linear feet within traveled way, per 0.10-mile section.
Threshold:	All <u>unsealed</u> transverse cracking - cracking running generally perpendicular to the centerline and edge line striping.
Methodology:	Measure and record linear feet of all unsealed transverse cracking within the section. Sealed cracks are not counted as a deficiency. Previously sealed cracks that have since re-opened are considered a deficiency.
Comments:	Unsealed panel and expansion joints in concrete pavement are not considered deficiencies for this survey. Where asphalt is overlayed on concrete pavement unsealed cracks in the asphalt pavement shall be counted as a deficiency.

E. HUMPS, SAGS, AND SETTLEMENTS AFFECTING RIDEABILITY



Humps and Sags

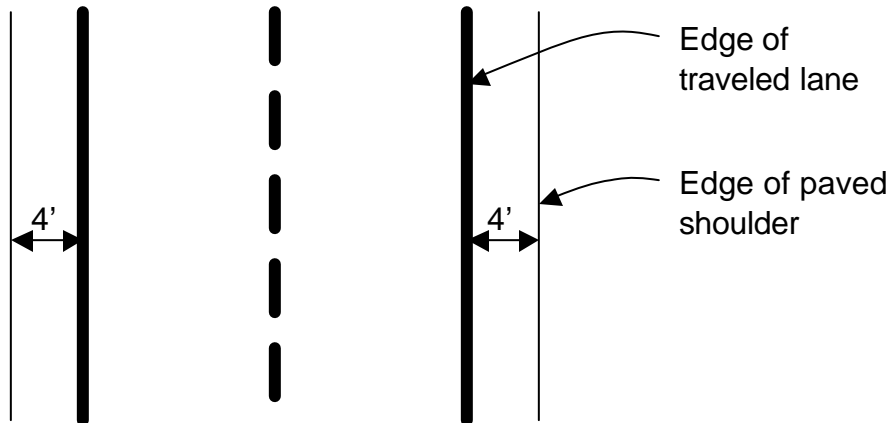


Pavement Delamination

Description:	Localized depressions or elevated areas of the traveled way that result from settlement, frost heave, pavement shoving, subgrade swelling, or other displacement due to tree roots, utility line installation, etc. This item also includes other pavement deficiencies such as delamination of asphalt pavement.
Unit of Measure:	Total square feet within the traveled way, per 0.10-mile section.
Threshold:	<p>Humps, Sags and Settlements: Localized depressions or elevated areas within the traveled way that have an adverse impact on rideability. <u>This is defined as a vertical deviation of 2 inches or greater at the time of the survey.</u></p> <p>Other Deficiencies: To be counted as a deficiency delamination must be a minimum of 6" x 6" in size.</p>
Methodology:	Calculate the total square feet for humps, sags, settlements and other deficiencies located within the traveled lanes.

III - PAVED SHOULDERS

General: Record total combined width of paved shoulders for the site.



Example: 8' total width

A. SHOULDER POTHOLES

Units of Measure: Total square feet of shoulder potholes per 0.10-mile section.

Threshold: Minimum size - (6" x 6" x 1" depth) or larger

Methodology: Calculate the total square feet for all potholes. Potholes smaller than the minimum size (6" x 6" x 1") are not counted as potholes.

B. SHOULDER ALLIGATOR CRACKING



Shoulder Alligator Cracking

Unit of Measure:	Total square feet within shoulder area, per 0.10-mile section.
Threshold:	All <u>unsealed</u> shoulder alligator cracking.
Methodology:	Calculate the total square feet for all unsealed alligator cracking in the shoulder. Use the average width of cracking to calculate square feet.

C. SHOULDER LONGITUDINAL CRACKING

Unit of Measure:	Total linear feet of cracking within shoulder area, per 0.10-mile section.
Threshold:	All <u>unsealed</u> longitudinal cracking - cracking running generally parallel to the fog line striping.
Methodology:	Measure and record linear feet of all unsealed longitudinal cracking within the shoulder area. Sealed cracks are not counted as a deficiency.
Comments:	Unsealed panel and expansion joints in concrete pavement are not considered deficiencies for this survey. Where asphalt is overlayed on concrete pavement unsealed cracks in the asphalt pavement shall be counted as a deficiency.

C. SHOULDER TRANSVERSE CRACKING

Unit of Measure:	Total linear feet of cracking within shoulder area, per 0.10-mile section.
Threshold:	All <u>unsealed</u> transverse cracking - cracking running generally perpendicular to the fog line striping.
Methodology:	Measure and record linear feet of all unsealed transverse cracking within shoulder area. Sealed cracks are not counted as a deficiency.
Comments:	Unsealed panel and expansion joints in concrete pavement are not considered deficiencies for this survey. Where asphalt is overlayed on concrete pavement unsealed cracks in the asphalt pavement shall be counted as a deficiency.

D. SHOULDER EDGE RAVELING



Unit of Measure:	Total linear feet of edge raveling, per 0.10-mile section.
Threshold:	Count all shoulder areas where paving material is breaking off into pieces (raveling) or is missing along shoulder edge.
Methodology:	Measure and record total linear feet of all edge raveling within shoulder area. All edge raveling is assumed to be 1 foot in width.
Comments:	Count only areas where material is actually breaking off (raveling) or missing from the shoulder. Areas that show alligator cracking but are intact should be counted as alligator cracking.

E. SHOULDER EDGE DROP-OFF



Unit of Measure:	Total linear feet of shoulder drop-off, per 0.10-mile section.
Threshold:	All shoulder edge drop-off 2 vertical inches or greater.
Methodology:	Measure and record linear feet of all shoulder edge drop-off 2 vertical inches or greater that occurs within the section. Shoulder drop-off less than 2 inches is not counted.
Comments:	In some cases the paved shoulder has been intentionally beveled to produce a gentle transition to the gravel shoulder. A beveled edge is not considered a deficiency.

F. SHOULDER SWEEPING / CLEANING



Unit of Measure:	Total linear feet of shoulder debris, per 0.10-mile section. Average width of shoulder debris, per 0.10-mile section
Threshold:	All shoulder areas that contain debris or require sweeping / cleaning.
Methodology:	Measure and record linear feet of shoulder debris. Measure and record the average width of shoulder debris.
Comments:	Debris is considered a deficiency if, in the best judgment of the surveyor, it constitutes a safety hazard to the driving public or in some way degrades highway functions.

G. SHOULDER HUMPS, SAGS, AND SETTLEMENTS



Humps and Sags



Delamination

Description:	Localized depressions or elevated areas of the shoulder that result from settlement, frost heave, pavement shoving, subgrade swelling, or other displacement due to tree roots, utility line installation, etc. This item also includes other shoulder deficiencies such as delamination of asphalt pavement.
Unit of Measure:	Total square feet within the shoulder areas, per 0.10-mile section.
Threshold:	<p>Humps, Sags and Settlements: Localized depressions or elevated areas within the shoulder areas. <u>This is defined as a vertical deviation of 2 inches or greater at the time of the survey.</u></p> <p>Other Deficiencies: To be counted as a deficiency delamination must be a minimum of 6" x 6" in size.</p>
Methodology:	Calculate the total square feet for humps, sags, settlements and other deficiencies located within the shoulder areas.

IV - DRAINAGE

A. DITCHES



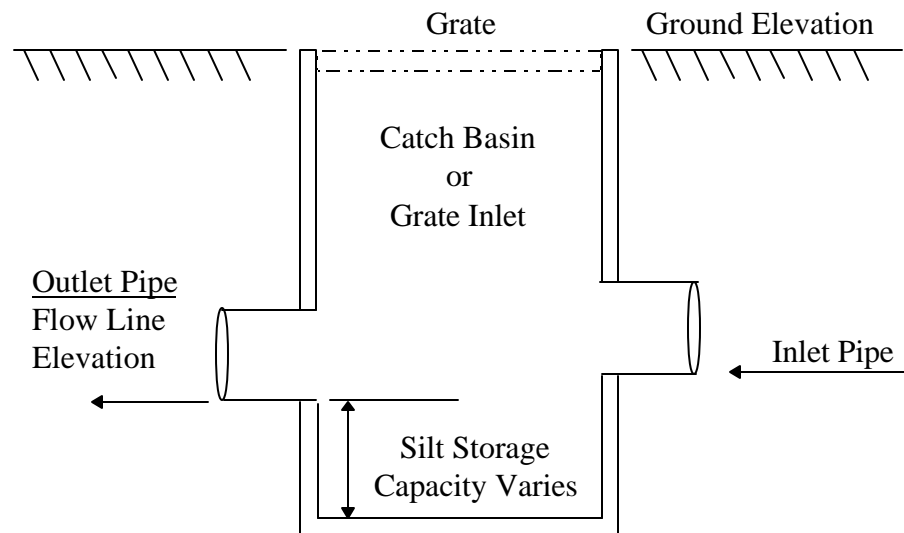
Units of Measure:	Total linear feet of ditch, per 0.10-mile section. Total linear feet of filled ditch, per 0.10-mile section.
Threshold:	Count as deficient all ditches that are 50% or more full.
Methodology:	<p>Measure all ditches within the section and record the total linear feet of ditches. Measure and record the linear feet of ditch that is 50% or more full of sediment or other material.</p> <p>For purposes of this survey, to be considered a ditch the following conditions must exist:</p> <ol style="list-style-type: none">1. Must be designed and constructed to carry water - not a natural swale, or2. Must be maintained as a ditch by Maintenance.
Comments:	Streams adjacent to the roadway are not considered ditches. Standing water (tidal or non-tidal) in ditches is not a deficiency. Vegetation growing in the ditch is not a deficiency. Ditches designed solely to capture rock fall shall not be considered a ditch for this survey.

B. CULVERTS



Unit of Measure:	Total number of culverts, per 0.10-mile section. Total number of culverts greater than or equal to 50% filled or otherwise deficient, per 0.10-mile section.
Threshold:	Count as deficient if: <ol style="list-style-type: none">1. Any portion of the culvert is 50% or more filled with sediment or debris, or2. Any end is significantly crushed or deformed, or3. The volume of the inflow or outflow is reduced 50% or more by obstructions such as rocks, vegetation, or woody debris, or4. The pipe is separated 1" or more, or damaged in a way that the function of the culvert is causing significant damage to the roadway prism or adjacent drainage channel.
Methodology:	Count and record all culverts within the section. Count and record any culvert that is 50% or greater filled or otherwise deficient. Evaluate only those culverts that cross state highways or county roads at their intersection with state highways. Do not count culverts under private access roads.
Comments:	Vegetation obscuring the end of a culvert is not a deficiency unless it obstructs the flow of water. . Standing water (tidal or non-tidal) in ditches is not a deficiency. Culverts designed to be half filled with gravel for fish habitat should not be rated as deficient.

C. CATCH BASINS / INLETS



Units of Measure:

Total number of catch basins and drain inlets, per 0.10-mile section. Total number of catch basins and drain inlets that are deficient.

Threshold:

Count as deficient any catch basin or drain inlet that has:

1. 50% or more of the inlet grate blocked with debris, or
2. The catch basin has sediment buildup that reaches or exceeds the flow line elevation of the outlet pipe.

Methodology:

Count and record the total number of catch basins and drain inlets in the section. Count and record the number of catch basins and drain inlets blocked by debris or catch basins filled with sediment.

Comments:

Both catch basins and drain inlets are rated for blockage of the inlet grate. Only catch basins are rated for sediment build-up. A flashlight and/or probe may be needed to determine if the structure is a catch basin (i.e., has silt storage capacity) and whether it is deficient.

D. SLOPE FAILURES



Unit of Measure:	Presence or absence of slope failure in a 0.10-mile section.
Threshold:	<p>ONLY count as deficient a slide or erosion that is <u>at the time of the inspection</u>:</p> <ol style="list-style-type: none">1. Jeopardizing the structural integrity of the shoulder or traveled lane(s), or2. Blocking the shoulder or traveled lane(s), or blocking the ditch, or3. Jeopardizing the structural integrity of guardrail or traffic signs. <p>Traffic may move slower through the area or lanes may be reduced, causing intermittent stoppages. <u>Erosion or slides not meeting the thresholds above shall not be considered deficient.</u></p>
Methodology:	Determine the presence or absence of slope failures within the survey section. Both fill and cut slopes can be affected. Presence of slope failure is recorded as "1", absence of slope failure is recorded as "0".

Comments:

Chronic or ongoing slope failures that do not meet the criteria listed above at the time of the survey are not to be counted as failures.

Edge drop-off is not considered a slope failure.

V - ROADSIDE

General: Record the total combined width of roadside.. If width of roadside varies use the combined averaged width for the section. Unpaved median areas are considered as roadside and would be added into the width, if present.

A. NOXIOUS WEEDS



Weed Infestation

Units of Measure: Total square feet of infestation, per 0.10-mile section.

Threshold: Presence of noxious weeds on the roadside.

Methodology:

Survey the entire roadside area and determine the presence of any noxious weeds. Measure the square feet of the infestation. **The total square feet of infestation shall not exceed the total square feet of roadside.**

Comments:

Identifying noxious weeds can be difficult and is best done by a person trained in weed identification. For assistance in identifying noxious weeds it is recommended that you consult with your area roadside or spray crew.

B. NUISANCE VEGETATION



Weed Infestation



Weed Infestation

Units of Measure:	Total square feet of infestation, within the normally maintained roadside, per 0.10-mile section.
Threshold:	Presence of nuisance vegetation in the normally maintained area of the roadside.
Methodology:	Survey the normally maintained roadside area and determine the presence of any nuisance vegetation. Measure the square feet of the infestation. The total square feet of infestation shall not exceed the total square feet of roadside.
Comments:	Identifying nuisance vegetation can be difficult and is best done by a person trained in weed identification. For assistance in identifying nuisance weeds it is recommended that you consult with your area roadside or spray crew
Note:	For this measurement, the presence of nuisance weeds will only be measured in the roadside area where the Area or Region policy/practice is to control them. For example, if a region policy is to control weeds only up to ten feet from the paved shoulder, nuisance weeds will only be measured within this area. Nuisance weeds outside of this area are not to be measured.

C. VEGETATION OBSTRUCTIONS



Vegetation Obstruction

Unit of Measure:	Presence or absence of vegetation obstructions in 0.10 mile section.	
Threshold:	Vegetation blocking sight distance to guide or regulatory signs, or intersections as seen from the driver's perspective.	
Methodology:	Measure and record the presence or absence of vegetation obstructing sight distance to signs or intersections. Absence of vegetation obstruction is recorded as "0", presence of vegetation obstruction is recorded as "1".	
Comments:	For the purpose of judging adequate site distance for this survey, signs and intersections should be visible from distances of:	
	Freeways	800 feet min.
	Rural roads	500 feet min.
	Urban roads	200 feet min.

D. LITTER

Unit of Measure:	Total number of litter counted, per 0.10-mile section.
Threshold:	Objects approximately 4 inches x 4 inches or larger.
Methodology:	Observe and record all litter 4" x 4" and greater.

VI - TRAFFIC

A. RAISED / RECESSED PAVEMENT MARKERS



Units of Measure:

Total number of raised / recessed pavement markers, per 0.10 mile section. Total number of worn or missing markers, per 0.10-mile section.

Threshold:

Missing or deficient pavement markers. If the markers are missing or broken, or the reflective surface is non-functional they should be considered as deficient.

Methodology:

Count and record all pavement markers within the section. Count and record any markers that are deficient or missing.

- Methodology (cont.):** In counting markers, it may be helpful to determine the number of markers associated with each pavement stripe (grouping) and then count stripes (groups) to determine the total number of markers that should be present. Markers butted end to end, can, in most cases, be considered as one marker if the normal installation would require only one marker in that location.
- Comments:** In many instances old markers are not removed as new markers are placed. Do not count old markers as deficient if new markers have been placed next to them.

B. PAVEMENT MARKINGS



Units of Measure:

Total number of pavement markings, per 0.10-mile section. Total number of worn pavement markings, per 0.10-mile section.

Threshold:

Count as deficient any pavement marking that is greater than 25% worn or worn in a way that makes it nonfunctional.

Methodology:

Count and record the total number of pavement markings within the survey site. **Markings such as crosswalks and railroad crossings are counted as one pavement marking.** Stop bars are considered a separate marking.

Count and record the total number of markings that are greater than 25% worn or worn in a way that make them nonfunctional.

Do not count culvert, or state patrol markings.

C. GUIDEPOSTS



Units of Measure:	Total number of guideposts or deer reflectors, per 0.10-mile section. Total number of broken or damaged guideposts, per 0.10-mile section.
Threshold:	Count as deficient any guidepost or deer reflector that is broken or damaged to the point that the reflectivity or functionality is impaired.
Methodology:	<p>Count and record the total number of guideposts and deer reflectors within the survey section. Count and record the total number of deficient guideposts and deer reflectors within the survey section.</p> <p>Count only guideposts located on the mainline. Guideposts located around the radii of an at grade intersection are considered a part of the mainline. Guideposts located on ramps or locations other than the mainline are not counted.</p>
Comments:	Count only what you see. Do not assume a marker is missing unless you can see evidence that there was, in fact, one there.

D. GUARDRAIL



Units of Measure: Total linear feet of guardrail, per 0.10-mile section. Total linear feet of defective guardrail, per 0.10-mile section.

Threshold: Count as deficient any guardrail, including cable guardrail, which is damaged to the point that the structural integrity is compromised or the functionality is impaired. This would include broken or cracked posts, missing bolts, or where the face of the rail is deformed 6 inches or greater. Also count as deficient any portion of rail that has been flattened even if it does not meet the 6 inches of deformation.

Concrete barrier is counted as guardrail for the purposes of the MAP survey. To be considered deficient, concrete barrier must be out of alignment by 6 inches or more, or the barrier surface facing traffic must exhibit spalling severe enough to snag a vehicle.

Methodology: Count and record the total linear feet of guardrail within the survey section. Count and record the total linear feet of deficient guardrail within the survey section.

Comments: Count as deficient only the linear feet of damage meeting the threshold. Do not count the linear feet of guardrail that would have to be used for repair, i.e. a rail with 2 feet of damage would be reported as 2 feet of damage, even though the entire 12' rail will have to be replaced.

VII - BRIDGES

General: Bridge data is only collected in the fall. Record the length of the bridge (from the WSDOT Bridge List) and measure and record the width (include sidewalks, curbs and deck) of the bridge on the MAP Bridge Data Collection Form.

A. BRIDGE DECK



Units of Measure: Total square feet of spalling on the bridge deck.

Threshold: Minimum size - (6" x 6" x 1" depth) or larger

Methodology: Observe the bridge deck, measure and record the total square feet of spalling. Repaired spalls are not counted.

B-1. DECKS & SIDEWALKS



Unit of Measure: Total square feet of sand or debris on the bridge deck and sidewalk.

Threshold: Presence of sand or debris.

Methodology: Measure the length and determine the average width of sand and debris on the bridge deck and sidewalk. Calculate and record the total square feet for all sand and debris.

B-2. Graffiti Removal



Unit of Measure: Percent of structure covered with graffiti.

Threshold: Check box for None, Minor, Moderate, Major or Significant severity.

None 0% severity

Minor 1% - 10% severity

Moderate 11% - 30% severity

Major 31% - 50% severity

Significant > 50% severity

Methodology: Observe the rails, girders, trusses, piers, and abutments and determine the extent to which the structure is covered with graffiti. Check the appropriate box on the form.

